Notice of Allowability	Application No.	Applicant(s)	
	10/009,336	TAK, SEUNG-HO	
	Examiner	Art Unit	
	Abraham Bahta	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *03/21/05*.

2. ☒ The allowed claim(s) is/are *2-7 and 9-17 renumbered 1-6 and 7-15 respectively*.

3. ☒ The drawings filed on *14 March 2002* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Allowable Subject Matter

Claims 2-7 and 9-17 are allowed.

The following is Examiner's reasons for allowance: The closest prior art is Gan et al (USP 6,090,221) and Madsen (USP 1,581,849).

Gan et al teaches a powered device for cleaning buildings comprising a belt (22) and drive wheels wherein the wheels rotate the belt wherein the device comprises suction units and a vacuum wherein the vacuum is provided to the suction units via a vacuum pump and vacuum tubing and a valve associated with each suction head and the device comprises a spray and cleaning unit which sprays through its nozzle the material needed for treatment of the building and Madsen teaches a machine comprising an endless belt of vacuum shoes adapted to make vacuum contact with the surface to be cleaned wherein the machine comprises rotating brush.

With respect to claim 2: The references do not teach or suggest a surface traveling apparatus comprising vacuum chambers installed to be attached to sides of the wheels; a vacuum tube connecting the vacuum chambers to each other; a vacuum pump formed in a part of the vacuum tube for intaking and exhausting air, and suction mechanisms installed along the endless track belt at predetermined intervals, valve driven by contacting the wheels, and vacuum attached at the surface by the vacuum pump intaking and exhausting air wherein the vacuum pump comprises a motor for generating a rotary force; a rotating magnet, in which the N pole and the S pole are alternately arranged and which is rotated by the rotary force of the motor, the rotating magnet

being adapted to generate a varying magnetic filed; a fixed magnet arranged to be opposite to the rotating magnet; a pump having a diaphragm operating by attraction and repulsion forced between the rotating magnet and the fixed magnet; a vacuum pump chamber, from which air is pumped outside due the movement of the diaphragm; and directional valves installed in opening at both bends of the vacuum pump chamber for permitting the pumped air to flow in only one direction.

With respect to claim 3: The references do not teach or suggest a surface traveling apparatus comprising vacuum chambers installed to be attached to sides of the wheels; a vacuum tube connecting the vacuum chambers to each other; a vacuum pump formed in a part of the vacuum tube for intaking and exhausting air, and suction mechanisms installed along the endless track belt at predetermined intervals, valve driven by contacting the wheels, and vacuum attached to the surface by the vacuum pump intaking and exhausting air wherein each of the suction mechanisms comprises a hollow valve case formed to be integrated with the endless rack belt; a valve driver formed on a part of the valve case and coming in and going out from the valve case by contacting the wheels; a lever operated by the valve driver going in and going out from the valve case; a ball moving up and down in the hollow portion of the valve case by operation of the lever; a spring for providing an elastic bias, wherein the spring is installed to contact an upper portion of the ball in the hollow portion of the valve case and a flexible body formed to be integrated with a lower portion of the valve case and vacuum attached to or detached from the surface when air evacuated from or supplied

into a space between the surface and the flexible body though a lower O ring opening of the valve case due to movement of he ball.

With respect to claim 5: The references do not teach or suggest a surface traveling apparatus comprising vacuum chambers installed to be attached to sides of the wheels; a vacuum tube connecting the vacuum chambers to each other; a vacuum pump formed in a part of the vacuum tube for intaking and exhausting air, and suction mechanisms installed along the endless track belt at predetermined intervals, valve driven by contacting the wheels, and vacuum attached to the surface by the vacuum pump intaking and exhausting air and articulated apparatus having a boom, which is telescopically extendable and retractable, and a further suction mechanism being vacuum attachable to and detachable from the surface, wherein the further suction mechanism is formed at the end of the boom so that the surface traveling mobile apparatus safely travels on a rugged surface or over an obstacle.

With respect to claim 9: The references do not teach or suggest a cleaning apparatus for automatically cleaning a surface by being moved by a surface traveling mobile apparatus which moves by an endless track belt trained around a case thereby traveling on the surface by rotating of wheels driven by a power source, the cleaning apparatus comprising: vacuum chambers installed to be attached and sealed to the wheels; a vacuum tube connecting the vacuum chambers to each other; a vacuum pump formed in a part of the vacuum tube for pumping air; suction mechanisms installed along the endless track belt at predetermined intervals, valve driven by contacting the wheels and vacuum attached to the surface by operation of the vacuum pump; a spraying device for

spraying water or a wash liquid on the surface when the surface traveling mobile moves; and a rotating brush for washing the surface using the sprayed water or liquid wherein the vacuum pump comprises a motor for generating a rotary force; a rotating magnet, in which the N pole and the S pole are alternately arranged and which is rotated by the rotary force of the motor, the rotating magnet being adapted to generate a varying magnetic filed; a fixed magnet arranged to be opposite to the rotating magnet, a pump having a diaphragm operating by attraction and repulsion force between the rotating magnet and the fixed magnet; a vacuum pump chamber, from which air is pumped outside due the movement of the diaphragm; and directional valves installed in opening at both ends of the vacuum pump chamber for permitting the pumped air to flow in only one direction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abraham Bahta whose telephone number is (571) 272-1532. The examiner can normally be reached on Monday - Friday; 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on (571) 272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Bahta
05/09/05

JOHN KIM
SUPERVISORY PATENT EXAMINER